

REMARKS

Initially, Applicants would like to express their appreciation to the Examiner for the detailed Official Action provided, and for the acknowledgment of Applicants' Claim for Priority and receipt of the certified copy of the priority document in the Official Action.

Upon entry of the above amendments, the abstract will have been replaced, the specification will have been amended, claim 4 will have been amended and claims 2, 3, 7 and 10 will have been canceled. Claims 1, 4-6, 8 and 9 are currently pending. Applicants respectfully request reconsideration of the outstanding objections and rejections, and allowance of all the claims pending in the present application.

Applicants note that a replacement Abstract is being submitted herewith.

On page 2 of the Official Action, the drawings were objected to because Figures 1, 2A-2D, 3A and 3B were not designated as depicting conventional systems. Applicants note three replacement sheets of drawings are being submitted herewith to address the issues pointed out by the Examiner. In particular, Figures 1, 2A-2D, 3A and 3B have been labeled as "RELATED ART". Accordingly, Applicants respectfully request that the Examiner withdraw the objection to the drawings.

On page 2 of the Official Action, a change to claim 4 was suggested by the Examiner. Applicants note that claim 4 has been amended to incorporate the language suggested by the Examiner, and that Paragraph [35] of the specification has also been amended to include the language.

On pages 3-5 of the Official Action, claims 1-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art system shown in Figures 1, 2A-2D, 3A and 3B (hereinafter "the APA") in view of BREWER (U.S. Patent No. 3,788,071). The Examiner acknowledges that the APA lacks a helical plate spring check valve. However, the Examiner takes the position that BREWER discloses such a helical plate spring check valve, and that it would have been obvious to one of ordinary skill in the art to provide such a helical plate spring check valve in the system of the APA in order to provide a positive checked position (closed position) and a low-restriction flow in the open position.

Applicants respectfully traverse the rejection of claims 1- 10 under 35 U.S.C. § 103(a). Applicants initially note that the rejection is deemed moot with respect to claims 2, 3, 7 and 10, which have been canceled.

Applicants submit that BREWER lacks any disclosure of a check valve in the form of a *helical plate spring*. The valve disc 44 of BREWER is instead formed with a pair of C-shaped slots 63 and 64 (note Fig. 3 and column 2, lines 27-38). Accordingly,

Applicants submit that BREWER can not be viewed as teaching the provision of a check valve in the form of a *helical plate spring*.

Further, with regard to claim 8, it is also clear that the different parts of the valve disc 44 of BREWER do not *overlap*. Once again, note slots 63 and 64 in Fig. 3, and compare to Figs. 4A and 5B of the present application. Applicants note that such overlapping is not necessary in the system of BREWER since the central check valve member 74 alone closes the valve (note the hidden lines in Fig. 3 and column 2, lines 39-48). Accordingly, Applicants submit that BREWER can not be viewed as teaching the provision of a check valve in the form of a *helical plate spring* having parts which *overlap*.

Applicants further submit that the air injection system for internal combustion engines disclosed in BREWER is not analogous to the piston reciprocating compressor of the APA. Accordingly, Applicants submit that one of ordinary skill in the art of piston reciprocating compressors would not have looked to such an air injection system for internal combustion engines for teachings of a valve.

Accordingly, Applicants submit that the modification suggested by the Examiner is the result of impermissible hindsight reasoning based upon the disclosure of the present application, rather than the teachings of the applied prior art. Applicants submit that this is particularly true in this case given the complete lack of any disclosure of a *helical plate*

spring check valve in BREWER.

Applicants also submit that dependent claims 4, 5, 6 and 9 which are at least patentable due to their respective dependencies from claims 1 and 8, for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record. For example, BREWER lacks any disclosure of a check valve in a stair shape having a narrower width as distance from the hole increases (claim 4), or a circular helix shape, triangular helix shape or rectangular helix shape check valve (claim 9).

Applicants respectfully submit that the rejection of claims 1, 4-6, 8 and 9 under 35 U.S.C. § 103(a) is improper at least for each and certainly for all of the above-noted reasons. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection, and an early indication of the allowance of these claims.

SUMMARY AND CONCLUSION

Entry and consideration of the present amendment, reconsideration of the outstanding Official Action, and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate.


Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

Any amendments to the claims that have been made in this amendment, which do not narrow the scope of the claims, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered cosmetic in nature, and to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should there be any questions or comments, the Examiner is invited to contact the undersigned at the below-listed telephone number.

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Attachments: 3 Replacement Sheets of Drawings